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FLOOD INSURANCE STUDY

ORIGINAL

CITY OF GOULD, ARKANSAS
LINCOLN COUNTY

AUGUST 15, 1987

Federal Emergency Management Agency

COMMUNITY NUMBER - 050127

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NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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FLOOD INSURANCE STUDY
CITY OF GOULD, LINCOLN COUNTY, ARKANSAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the City of Gould, Lincoln County, Arkansas, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by the Vicksburg District of the U. S. Army Corps of Engineers (COE) during the preparation of a Special Flood Hazard Information Report for Canal 19 (Boeuf River) at Gould-Dumas, Arkansas.

1.3 Coordination

On June 26, 1986, the City of Gould was notified of the initiation of a Flood Insurance Study for the community.

On September 11, 1986, a final Consultation and Coordination Officer's (CCO) meeting was held with representatives of the Federal Emergency Management Agency (FEMA) and the city to review the results of the study.

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2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the City of Gould, Lincoln County, Arkansas. The area of study is shown on the Vicinity Map (Figure 1).

Canal 19 (Boeuf River) was studied by detailed methods for its entire length affecting the community. The areas studied by detailed methods were selected based upon the extent and validity of available existing hydrologic and hydraulic data.

2.2 Community Description

The City of Gould is located in northeastern Lincoln County in southeastern Arkansas, approximately 70 miles southeast of Little Rock. It is completely surrounded by the unincorporated areas of Lincoln County.

The population of approximately 1,600 is supported by an agricultural economy based on crops of soybean, rice, and cotton. U. S. Route 65 and the Missouri-Pacific Railroad run through the center of town.

2.3 Principal Flood Problems

The community is subject to flooding from the Cypress Drainage System, which is a combination of natural and artificial channels comprised of Cypress Creek and Canal 19.

Since channel improvements were completed in 1959 on Canal 19, the four highest annual peak stages at the County Route 212 bridge (Oil gage) occurred in 1961, 1964, 1966, and 1969, with elevations of 157.0, 159.0, 161.4, and 160.4 feet, respectively.

2.4 Flood Protection Measures

The City of Gould is located within the Cypress Creek Drainage Basin. Prior to 1921, this area was subject to floods of the Mississippi River that were diverted through the Cypress Creek Gap in the Mississippi River levees near Rohwer, Arkansas. After this gap was closed in January 1921, the drainage from approximately 430 square miles was diverted south to the Boeuf River and Bayou Macon by the Cypress Drainage System. Canal 19, one of the main outlets for this system, consists of 43.7 miles of channel improvements and 6.5 miles of channel cutoffs for a total of 50.2 miles of channel work. This work was authorized by the Flood Control Act

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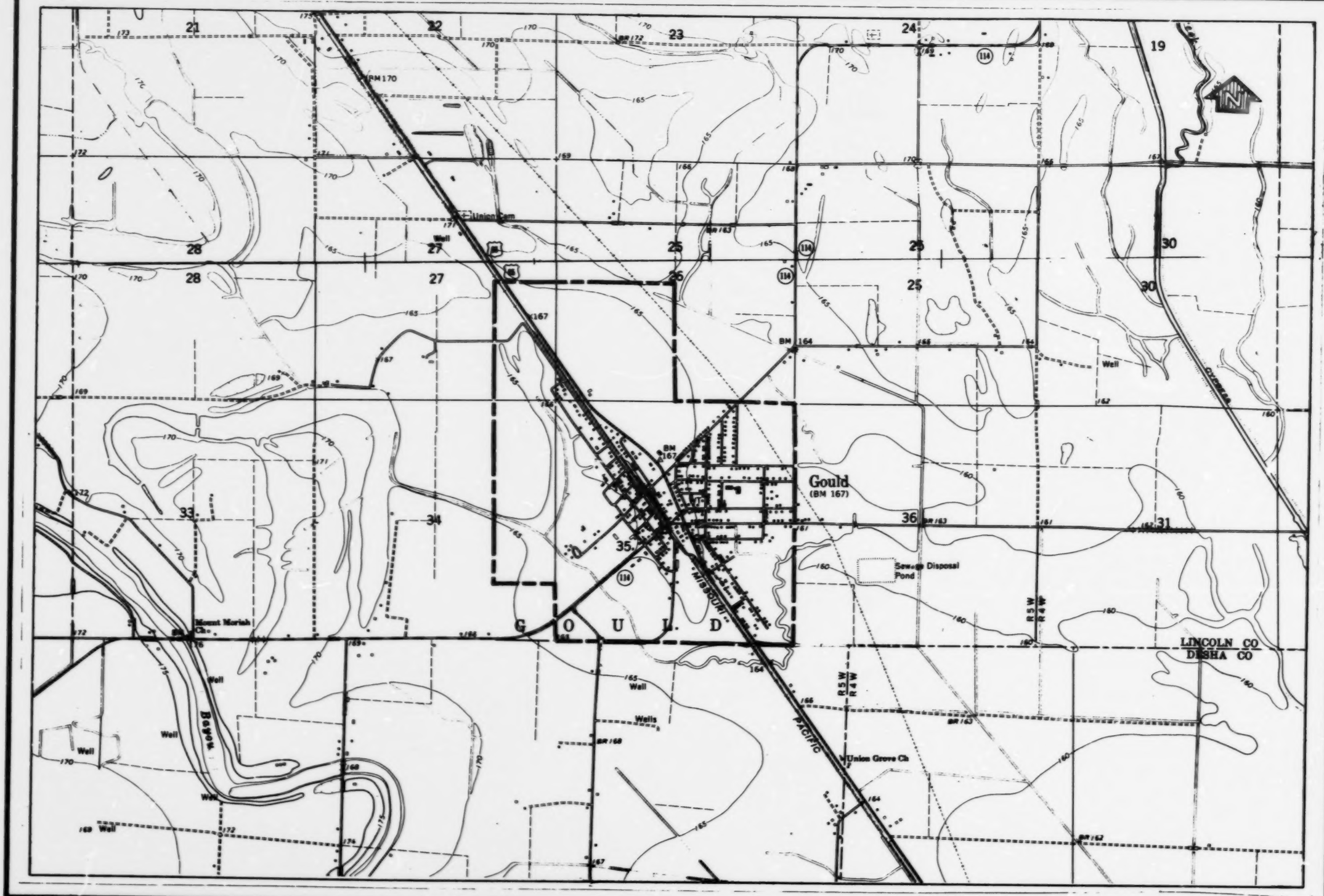
VICINITY MAP

APPROXIMATE SCALE
0 2000 4000 6000 FEET

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF GOULD, AR
(LINCOLN CO.)

FIGURE 1



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of 1946 and completed in 1959. Canal 19 Extension, consisting of 9.4 miles of channel improvement was authorized in 1958 and completed in 1965.

Other channel work in the Gould area consisted of local drainage improvements, including Kirsh Lake Canal and some of its tributaries, completed in the early 1960's (Reference 1).

3.0 ENGINEERING METHODS

For the flooding source studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for the flooding source studied in detail affecting the community.

The hydrologic analysis for Canal 19 (Boeuf River) was obtained from a COE Special Flood Hazard Information Report (Reference 1). The 100-year flood was the only recurrence interval studied in that report.

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the source studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

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The hydraulic analysis for the 100-year recurrence interval for Canal 19 (Boeuf River) was obtained from the COE Special Flood Hazard Information Report (Reference 1).

Elevations shown in the community are shown on the Flood Profiles (Exhibit 1).

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the Flood Insurance Rate Map (Exhibit 2); the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2 percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the flooding source studied in detail, the 100-year floodplain boundary has been delineated. The boundary was interpolated using topographic maps at a scale of 1:24,000 with a contour interval of 5 feet (Reference 2).

The 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zone AE). Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

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4.2 Floodways

The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights.

Floodway information was not available for Canal 19 (Boeuf River) in the City of Gould.

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

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Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

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For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 OTHER STUDIES

There are no other studies available concerning flooding affecting the community.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Federal Regional Center, 800 North Loop 288, Denton, Texas 76201.

9.0 BIBLIOGRAPHY AND REFERENCES

1. U. S. Army Corps of Engineers, Vicksburg District, prepared for the Arkansas State Planning Commission, Special Flood Hazard Information Report, Canal 19 (Boeuf River) at Gould-Dumas, Arkansas, Vicksburg, Mississippi, February 1972.

2. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 5 Feet: Gould, Arkansas, 1964.

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EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	Elevation (Feet NGVD)	Description of Location
RM 1	167.78	86 feet south of southwest corner of Gould Lions Club Youth Center, 110.8 feet east of centerline of U. S. Route 65, 15.6 feet east northeast of most south of two 2-by-2-by-3 foot concrete blocks.

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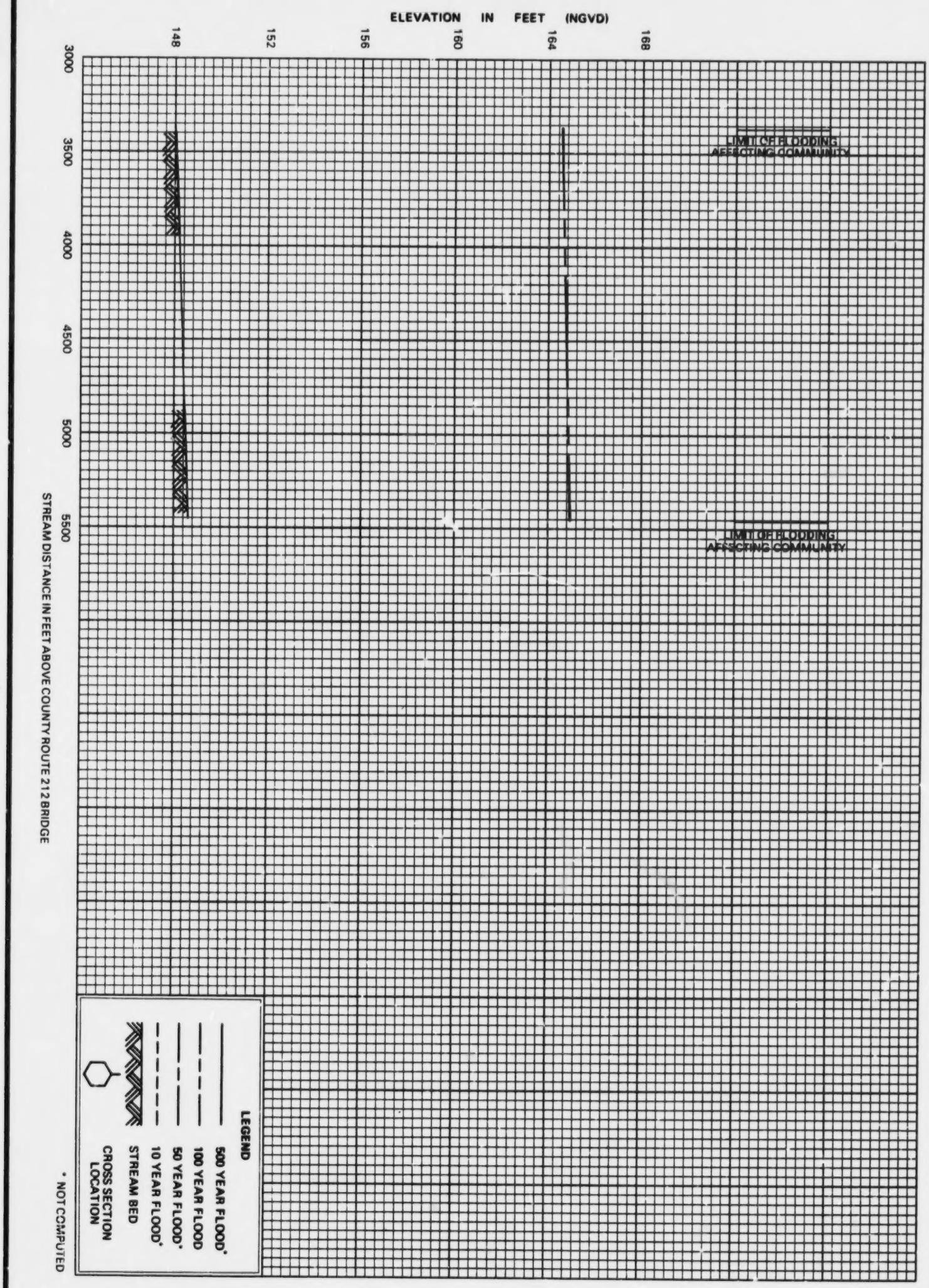

01P	FEDERAL EMERGENCY MANAGEMENT AGENCY CITY OF GOULD, AR (LINCOLN CO.)	FLOOD PROFILES CANAL 19 (BOEUF RIVER)

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